

# Comparison chart



|             | INSIGHT  | EPOC+   | EPOC FLEX  |
|-------------|--|---|--|
| Description | Designed for everyday use, EMOTIV Insight boasts advanced electronics that are fully optimized to produce clean, robust signals anytime, anywhere. | The award winning EMOTIV EPOC+ is designed for scalable and contextual human brain research and provides access to professional grade brain data with a quick and easy to use design. | EPOC Flex combines the award-winning wireless technology of our EPOC+ headset with the flexibility and high density afforded by more traditional EEG head cap systems. |

## TECHNICAL SPECIFICATIONS

|                    | INSIGHT  | EPOC+   | EPOC FLEX  |
|--------------------|--|---|--|
| Sensor count       | 5 (+2 references)  | 14 (+2 references)  | Up to 32 (+ 2 references)  |
| Sensor locations   | AF3, AF4, T7, T8, Pz   | AF3, AF4, F3, F4, FC5, FC6, F7, F8, T7, T8, P7, P8, O1, O2  | Configurable in any 10-20 location   |
| References         | CMS/DRL references on left mastoid process   | CMS/DRL references at P3/P4; left/right mastoid process alternative   | CMS/DRL configurable in any 10-20 location or on ears (compatible ear clips for sensors included)                            |
| Sample Rate        | 2048 internal downsampled to 128 SPS   | 2048 internal downsampled to 128 SPS or 256 SPS (user configured)   | 1024 internal downsampled to 128 SPS   |
| Contact quality    | Realtime CQ monitor (patented)   | Realtime CQ monitor (patented)  | Realtime CQ monitor (patented)   |
| Frequency response | 0.5 – 43 Hz  | 0.16 – 43 Hz  | 0.16 – 43Hz  |
| Resolution         | 14 bit per channel   | 14 bit or 16 bit per channel  | 16 bit per channel   |
| LSB Resolution     | 0.51 $\mu$ V @ 14 bit  | 0.51 $\mu$ V @ 14 bit / 0.13uV @ 16 bit   | 0.51 $\mu$ V @ 16 bit  |
| Dynamic range      | $\pm$ 4.17 mV  | $\pm$ 4.17 mV   | $\pm$ 4.17 mV  |
| Sensor technology  | Long life semi-dry polymer   | Saline soaked felt pads   | Saline OR Ag/AgCl  |
| Motion sensors     | 9 axis sensor (3x gyro, 3x accelerometer, 3x magnetometer)   | 9 axis sensor (3x gyro, 3x accelerometer, 3x magnetometer)  | 9-axis sensor (4x quaternion, 3x accelerometer, 3x magnetometer)**<br><i>** Software support for motion data coming soon</i> |
| Connectivity       | Proprietary 2.4GHz wireless (custom USB receiver)<br>Bluetooth(r) SMART 4.0 LE                                     | Proprietary 2.4GHz wireless (custom USB receiver)<br>Bluetooth(r) SMART 4.0 LE<br>USB to change headset settings                    | Proprietary 2.4GHz wireless (custom USB receiver)  |
| Internal power     | Li-poly battery, 480 mAh<br>Up to 8 hours using proprietary wireless;<br>Up to 4 hrs using Bluetooth(r) SMART mode | Li-poly battery, 680 mAh<br>Up to 12 hours using proprietary wireless;<br>Up to 6 hours using BTLE (depending on resolution chosen) | Internal Lithium Polymer battery 640mAh<br>Up to 9 hours   |

## DETECTIONS

|                    | INSIGHT   | EPOC+   | EPOC FLEX     |
|--------------------|---|---|---------------|
| Facial Expressions | Blink<br>Wink Left/Right<br>Furrow (frown)<br>Raise brow (surprise)<br>Smile<br>Clench teeth (grimace)  | Blink<br>Wink Left/Right<br>Look Left/Right<br>Furrow (frown)<br>Raise brow (surprise)<br>Smile<br>Clench teeth (grimace)<br>Laugh<br>Smirk Left/Right  | Not available |
| Emotional States   | Excitement<br>Long term excitement<br>Stress<br>Engagement<br>Relaxation<br>Interest / Affinity<br>Focus  | Excitement<br>Long term excitement<br>Frustration<br>Engagement<br>Relaxation<br>Interest / Affinity<br>Focus   | Not available |
| Mental Commands    | Neutral + up to 4 pretrained items from a list of 13 labels:<br>Push<br>Pull<br>Lift<br>Drop<br>Left<br>Right<br>Rotate clockwise<br>Rotate anti-clockwise<br>Rotate forwards<br>Rotate backwards<br>Rotate left<br>Rotate right<br>Disappear | Neutral + up to 4 pretrained items from a list of 13 labels:<br>Push<br>Pull<br>Lift<br>Drop<br>Left<br>Right<br>Rotate clockwise<br>Rotate anti-clockwise<br>Rotate forwards<br>Rotate backwards<br>Rotate left<br>Rotate right<br>Disappear | Not available |

## CONFIGURABLE OPTIONS

|                           | INSIGHT  | EPOC+  | EPOC FLEX   |
|---------------------------|--|--|---|
| User configurable options | Enable/disable individual motion sensors (accelerometer, gyro, magnetometer)<br>Enable/disable Motion sensor chip for extended operation | 14 bit / 16 bit voltage resolution<br>Enable/disable individual motion sensors (accelerometer, gyro, magnetometer) | Positioning of recording and reference sensors<br>Position of Control Box (at Iz or Cz) |